INTERNATIONAL JOURNAL OF DRUG DISCOVERY AND HERBAL RESEARCH (IJDDHR)
2(2): April–June: (2012), 413-417
ISSN: 2231-6078

Research Article

Formulation and Evaluation of Thalisadi Churna and Its Comparison with Market Products

Shikha Sharma[1], Dr. Umesh ku. Jain[1], Sattwik Das[2*]

1. Bhopal Institute of Technology and Science (Pharmacy), Bangerisa, Bhopal, M.P, India
2. Malhotra college, Badwai, Near Karond, Bhopal, M.P, India

Abstract

Drug delivery technologies are now receiving considerable attention from pharmaceutical companies. The main purpose of developing alternative drug delivery technologies is to increase efficiency and safety of drug and provide more convenience for the patient. Substantial research conducted during the past several years has lead to the development of technologies that meet the requisite criteria for delivering the drug through a non-invasive route. One of such technologies is transdermal drug delivery**.** Transdermal patch is a medicated adhesive pad that is designed to release the active ingredient at a constant rate over a period of several hours to days after application to the skin. It has been found that drugs from herbal origin can be utilized with enhanced efficacy by incorporating in transdermal drug patches. Herbal transdermal patches which aids to quit smoking, relieve stress, increase sexuality, insect repellant patches, detoxification, male energizer, postpone menopause are available. Even herbal penetration enhancers like some terpenes are found to be potential enough to replace the conventionally available penetration enhancers like DMSO (Dimethyl Sulfoxide) which has several disadvantages. The present review will try to focus on the delivery of some herbal agents through transdermal route.

Key Words: Thalisadi churna, ayurveda, evaluation..

Introduction

Thalisadi Churna is important in management of digestive and respiratory disturbances of all body types. It is having different ingredient which are having a wide range of uses in health maintenance. Shunthi and Pippali are special to be quoted here. Shunthi is said to be Vishvabhaishjya i.e. an herb which is useful in all diseases and Pippali is a rejuvenator for the whole body specially being the respiratory and digestive system. This is a totally herbal combination without any side effect. A quality Ayurvedic formulation must confirm test for identity, potency, purity, safety and efficacy. Majority of Ayurvedic formulations use whole plants either alone or in combinations. The efficacy of the Ayurvedic formulation may vary with the use of the adulterants in the formulations. Now days because of complexity and associated side effects with the usage of allopathic medicines, the majority of the world population is turning toward the alternative system of the medicine.

***Corresponding Author**

E-mail: dsattwik@yahoo.co.in, dsattwik@gmail.com
Mob : +91-9039459259

Also the World Health Organization (WHO) assembly has emphasized the need to ensure the quality of the medicinal plants products by using modern controlled techniques and applying suitable standards. According to Ayurvedic formulary this churna composed eight herbs, but there is not a single standard mentioned for ensuring for the identity, potency, purity, safety and efficacy of the churna. The present paper reports on the formulation, evaluation and comparison for ensuring the thalisadi churna.[1-3]

Material and Methods

Formulation

The crude drugs used in thalisadi churna were purchased from local market of Bhopal district of Madhya Pradesh and identified on the basis microscopic and macroscopic characters and compared it with standard Pharmacopoeial monographs. Organoleptic evaluation was used for identification of sensory characteristics like colour, odour, and taste. Active phytochemical constituents like glycosides, flavonoides, alkaloids, carbohydrates, tannins, volatile oils were identified through qualitative chemical analysis in each of the sample. Thalisadi Churna was prepared according to the procedure mentioned in "Bhaishajya Ratnawali" (Table 1). [4]The eight crude drugs *Abies webbiana*, *Piper nigrum*, *Piper longum*, *Zingber officinales*, *Bambusa arundinacea*, *Cinnamomum zeylanicum*, *Elettaria cardamomum*, *Saccharum officinarum* were powdered and passed through sieve no. 80 and ingredients were mixed uniformly in proportion accordance with Ayurvedic Formulary of India.[5]

Evaluation

Micromeritic Parameters

The physical characteristics of the formulation were determined for market churna (TC-1), market churna (TC-2) and laboratory churna (TC-3) in terms of the tap density, bulk density, flow rate, angle of repose and particle size distribution in accordance with method given in Indian Pharmacopoeia.

Extractive Values

Thalisadi churna (5gm) was extracted in water, alcohol, chloroform, and benzene 100 ml each separately by cold maceration method and their extractive values were determined as per the method given in Ayurvedic Pharmacopoeia India.

Ash values

Thalisadi churna (2gm) was weighed from each samples, these are taken in the separate china disc and incinerated at a temperature not exceeding 450^0 C until free from

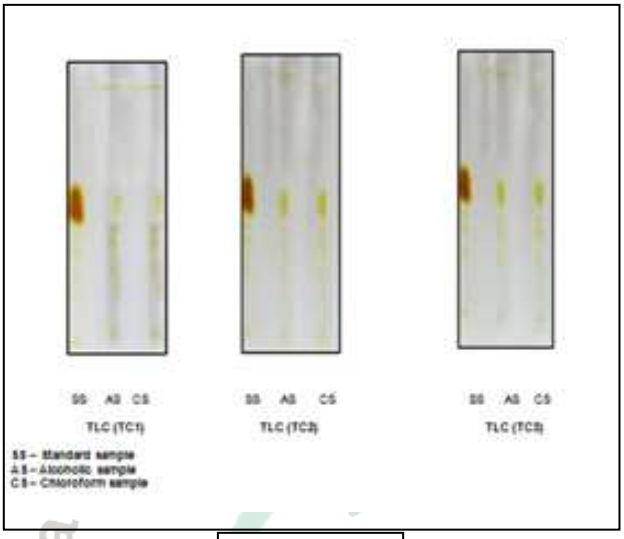


Figure - 1

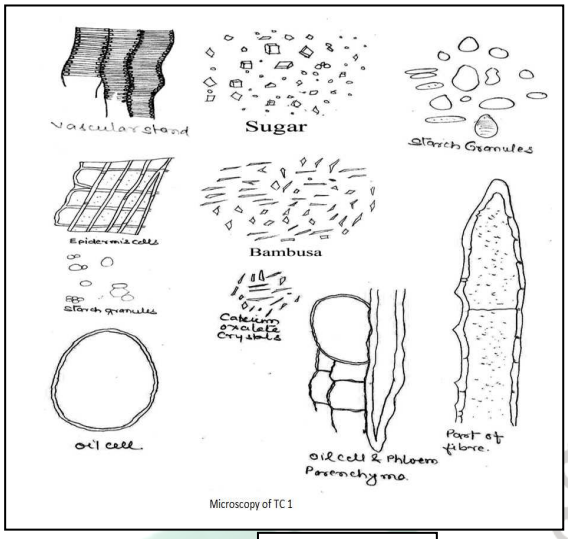
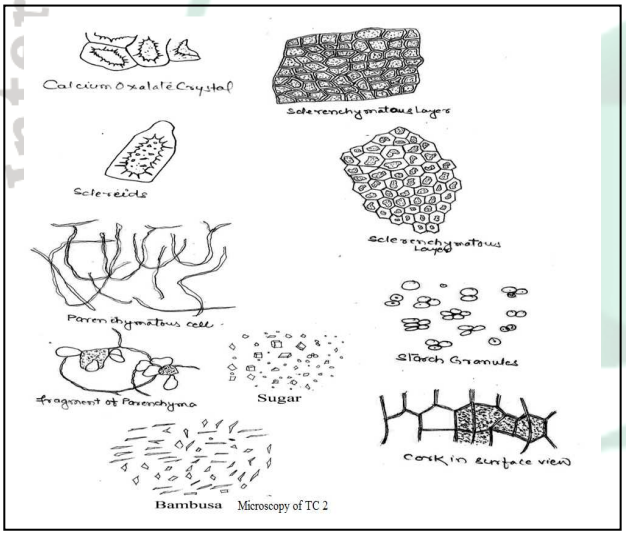


Figure - 2



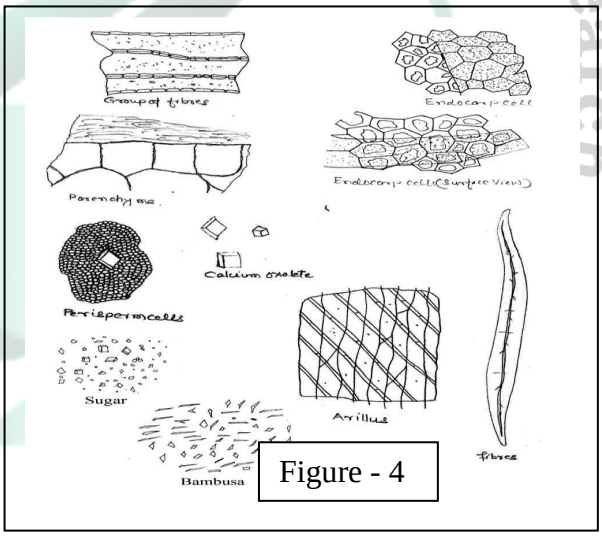


Figure - 4

carbon and then was cooled. The total ash collected and weighed after sufficient burn, it is transferred into the conical flask containing appropriate solvents. The ash becomes in the suspension form is separately filtered, dried and weighed and their respective soluble ash value is determined.[6-7]

Volatile oil content

Thalisadi churna (50g) was weighed accurately and extract volatile oil as per method given in Ayurvedic Pharmacopoeia India. The quantity as % v/w on a dry weight basis was calculated.

Moisture content

Thalisadi churna (10g) was placed in a tarred evaporating dish. The tarred evaporating dish was dried at 105^0 C for 6 h and weighed. The drying was continued until difference between two successive weighing was not more than 0.25% of constant weight.

Thin layer chromatography

10mg of each sample were soaked in 10 ml of different solvent (methanol and chloroform). 10 µl of each sample extract ware applied on pre-coated silica gel 60 F254 plate of uniform thickness. Develop the plate up to 8.5cm in the solvent system toluene: ethyl acetate (7:3 v/v).Time for pre saturation with solvent vapors is 2.0 hrs. After air drying the plate was visualized in UV 254 nm. The plate was then sprayed by Dragendorff's reagent. The spots appeared (Fig-1).[8-12]

Results and Discussion

Thalisadi churna samples were prepared in laboratory according to Ayurvedic formulary. The TC 1, TC 2 and TC 3 were subjected to various morphological and microscopical examinations for authentication of identity and purity of the sample (Table 2 & 3 and Fig 2, 3, 4). Various phyto-constituents of thalisadi churna (TC) were determined and presented in table 4.They were evaluated by comparative analysis for their extractive values (distilled water, ethanol, chloroform, benzene), ash values (Total ash, water soluble ash and acid insoluble), micromeretic parameters (tap density, bulk density, flow rate and angle of repose, particle size distribution), chemical tests and phytochemical evaluation. Micromeretic parameters are presented in table 5 and 6.Extractive values of TC 1, TC 2 and TC 3 in different solvents are compared and are given in table 7, while ash values, volatile oil content and moisture content of TC 1, TC 2 and TC 3 were given in table 8,9,10 respectively.

Conclusion

The evaluation study was proposed to establish quality and physiochemical characteristics of thalisadi churna formulated and marketed product. Evaluation studies based on micromeritics, ash values, volatile oil content, moisture content and macroscopic parameters such as colour, taste, and odour, of all products were determined as most similar than others.

During the path of present research it was found that both are having some contrary characteristics which are most similar to each other. Hence, all products are good and most effective on the different parameters of standardization.

Acknowledgements

The authors are grateful to the Principal and Mr. Ajay Patel of the Institute for providing the sufficient facilities in the college for carrying out present research work.

References :

1) Wujastyk D. (2003).The Roots of Ayurveda, Selections from Sanskrit Medical Writing. 56-71.
2) Kapoor L.D. (1990). Handbook of Ayurvedic Medicinal Plants. CRC Press Inc., Florida, 56.
3) Satyavati G.V., Raina M.K. , Sharma M. (1976). Medicinal Plants of India. vol.1, ICMR, New Delhi, 42-53.
4) Das G.(2002). Bhaishajya Ratnavali. Motilal Banarasidas Publishers .New Delhi,461.
5) The Ayurvedic Formulary of India.(1976). Vol. 1 Ed.1. Government of India,Ministry of Health and Welfare, New Delhi.
6) Ayurvedic, Pharmacopoeia of India. 1986, vol. 1 (1), 26-123.
7) Basu, D.B. (2005).Indian medicinal plants plates. vol. 1(4),821- 1024.
8) Chauhan SK, Kimothi GP, Singh BP, Agrawal S. (1998).Determination of piperine by HPLC method from different sample, Indian Drugs . 35 (7): 408-411.
9) Indian Herbal Pharmacopoeia. Analytical method. 2005, vol.2,167, 491.
10)Krishnamurthy LV,Sane RT.(2001). Ayurvedic Bhashmas on the basis of Modern Analytical Instrumentation Techniques, Research Journals of Chemistry and Environment . 5(4):65-67.
11)Mukherjee K.P.(2003) .Development of standardization parameter. Quality control of Herbal drugs. 1:183-219.
12)Majumdar AM, Dhule J.N, Deshmukh VK, Naik SR. (1999). Indian Drugs. vol. 36(2),123-126 .

Table No. 1: Formulation of Thalisadi churna

S. No	Name	Part used	Qty. mentioned for 10 g	Qty. taken for 100 g
1.	*Abies webbiana*	Leaves	0.208 g	2.08 g
2.	*Piper nigrum*	Fruit	0.416 g	4.16 g
3.	*Zingber officinales*	Rhizome	0.625 g	6.25 g
4.	*Piper longum*	Fruit	0.834 g	8.34 g
5.	*Bambusaarundinacea*	Crystal	1.041 g	10.41 g
6.	*Cinnamomum zeylanicum*	Bark	0.104 g	10.41 g
7.	*Elettaria cardamomum*	Fruit	0.104 g	10.41 g
8.	*Saccharum officinarum*	Crystal	6.668 g	66.68 g

Table No. 2: Organoleptic characteristic of Churnas

S.No	Name of Drugs	Colour	Odour	Taste
1	Marketed churna (TC1)	Whitish brown	Sweet aromatic	Sweet
2	Marketed churna(TC2)	Light brown	Sweet aromatic	Sweet
3	Formulated churna(TC3)	Whitish brown	Sweet aromatic	Sweet

Table No. 3: Comparison of microscopic structures between market and laboratory churna

S.No	Name of plant	Name of structure	TC 1	TC 2	TC 3
1	*Abies webbiana*	Epidermis cell	+	+	+
2	*Piper nigrum*	Vascular strand,Calcium oxalate crystal	+	+	+
3	*Zingber officinales*	Fibre, starch granule	+	+	+
4	*Piper longum*	Endocarp cell, part of fibre	+	+	+
5	*Bambusa arundinacea*	Crystals of vanslochana	+	+	+
6	*Cinnamomum zeylanicum*	Calcium oxalate crystal,oil cell, fibre	+	+	+
7	*Elettaria cardamomum*	Epidermis cell, starch granule	+	+	+
8	*Saccharum officinarum*	Crystal of sugar	+	+	+

+ = Present, - = Absent

Table No. 4: Phytochemical Tests

S.No	Formulation	Alkaloids	Carbohydrates	Glycosides	Volatile Oil	Tannins
1	TC 1	+	+	-	+	+
2	TC 2	+	+	-	+	+
3	TC 3	+	+	-	+	+

+ = Present, - = Absent

Table No. 5: Micromeritics parameter of Churnas

S.No	Formulation	Tapped Density (g/ml)	Bulk Density (g/ml)	Flow rate (g/sec)	Angle of Repose
1	TC 1	0.32±0.015	0.22±0.05	25.8±0.57	29.16^0±0.30
2	TC 2	0.36±0.02	0.22±0.01	22±1.83	25.1^0±1.21
3	TC 3	0.32±0.01	0.21±0.01	20.76±0.75	26.5^0±0.92

Mean n=3, (mean± SD)

Table No. 6: Particle Size Distribution

S.No	Formulation	Mean surface (µm)	Mean vol. (µm)	Mean surface vol.(µm)	Weight mean (µm)
1	TC 1	133±3.21	152±2.51	154±2.67	147±2.16
2	TC 2	129±2.64	161.6±1.52	161.6±2.08	151.6±1.52
3	TC 3	133±3.0	173±2.8	154.3±1.52	159±2.64

Mean n=3, (mean± SD)

Table No. 7: Solvent Extractive Values

S.No	Formulation	Water soluble extractive value	Alcohol soluble extractive Value	Chloroform soluble extractive value	Benzene Soluble extractive value
1	TC 1	2.25±0.030	1.53±0.017	0.50±0.02	0.3±0.3
2	TC 2	2.14±0.02	1.33±0.03	0.53±0.01	0.4±0.21
3	TC 3	2.32±0.025	1.83±0.01	0.56±0.015	0.15±0.03

Mean n=3, (mean± SD)

Table No. 8: Ash Values of Churnas

S.No	Formulation	Total ash value	Water soluble ash value	Acid insoluble ash value
1	TC 1	1.56±0.03	0.93±0.02	0.67±0.011
2	TC 2	1.22±0.02	0.84±0.01	0.41±0.011
3	TC 3	1.11±0.01	0.64±0.01	0.24±0.005

Mean n=3, (mean± SD)

Table No. 9: Volatile oil content of Churnas

S.No	Formulation	Yield
1	TC 1	0.56±0.015
2	TC 2	0.46±0.015
3	TC 3	1.13±0.020

Mean n=3, (mean± SD)

Table No. 10: Moisture content values

S.No	Formulation	Moisture content
1	TC 1	1.02±0.045
2	TC 2	1.02±0.01
3	TC 3	1.26±0.03

Mean n=3, (mean± SD)

Table No. 11: TLC of churna

S.No	Name of Drugs	Solvent System	Rf values		
			TC1	TC2	TC3
1	Alcoholic extract	Toluene:Ethylacetate (70:30)	0.13	0.13	0.12
2	Chloroform extract		0.11	0.10	0.11